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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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09/994,015

11/27/2001

Richard S. Orr

0918.0132C

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04/25/2005

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EXAMINER

LUGO, DAVID B

ART UNIT

PAPER NUMBER

2637

DATE MAILED: 04/25/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/994,015

Applicant(s)

ORR, RICHARD S.

Examiner

David B. Lugo

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 27 November 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-37 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-5, 7-11, 13-15, 18, 19, 21-23, 25-27, 29 and 34-37 is/are rejected.
- 7) ☒ Claim(s) 6, 12, 16, 17, 20, 24, 28 and 30-33 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 November 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>11/27/01, 9/26/03</u> . | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Specification***

1. The disclosure is objected to because of the following informalities:
  - a. Page 22, line 17, "chirp modulator 32" should be --chirp modulator 34-- to correspond with Fig. 15A.
  - b. Page 24, line 19, --in operation 55-- should be added after "mobile unit then determines" to correspond with Fig. 17. Appropriate correction is required.

### ***Claim Objections***

2. Claims 14, 15, 19, 20 and 25-28 are objected to because of the following informalities:
  - a. Claim 14, lines 8-9, "based the correlation signal" should be --based on the correlation signal--.
  - b. Claim 19, lines 7-8, "based the correlation signal" should be --based on the correlation signal--.
  - c. Claim 25, line 4, "a second a spread" should be --a second spread--.Appropriate correction is required.

### ***Claim Rejections - 35 USC § 101***

3. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.
4. Claims 36 and 37 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.
5. Claims 36 and 37 are drawn to a "transmission signal" which does not fall within one of the four statutory categories of invention.

***Claim Rejections - 35 USC § 102***

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

7. Claims 1, 7 and 21 are rejected under 35 U.S.C. 102(b) as being anticipated by Christy et al. U.S. Patent 4,665,404.

8. Regarding claims 1 and 7, Christy et al. disclose a transmitting station in Fig. 5 comprising a time base (clock 122), a communication signal generator 138 outputting a communication signal in synchronization with the time base, and a spread spectrum signal generator 134 coupled to the communication signal generator and outputting a spread spectrum position determination signal in synchronization with the time base (see col. 1, lines 12-16; col. 2, lines 49-56; col. 7, lines 48-62; col. 8, line 39 to col. 9, line 16).

9. Regarding claim 21, Christy et al. disclose a method of transmitting a spread-spectrum position determination signal with a communication signal generated in synchronization with a transmitter time base (see col. 1, lines 12-16), comprising generating the spread spectrum signal via PN generator 134 in synchronization with the transmitter time base (clock 122 – see col. 7, lines 48-62), and transmitting the spread spectrum signal with the communication signal (col. 8, lines 39-54).

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10. Claims 13-15, 18, 19, 25, 27, 29 and 34 are rejected under 35 U.S.C. 102(b) as being anticipated by Schuchman et al. U.S. Patent 6,111,538 (cited by applicant).

11. Regarding claims 13 and 18, Schuchman et al. disclose a mobile unit receiver in Figure 5 comprising a receiving section RFE configured to receive communication signal with a plurality of frames (i.e. time slots – see Tables 1-2) and a spread spectrum navigation signal embedded in the incoming signal (see col. 8, lines 10-12; col. 11, lines 38-45), where a portion of the processing chain is illustrated in Fig. 8 (see col. 12, lines 23-25; col. 14, lines 38-43) which includes a synthesizer unit (SYN) configured to generate a frequency signal, a mixer having a first input coupled to the receiving section, a second input port coupled to the synthesizer unit, and an output port outputting a wireless communication signal downconverted based on the frequency signal (see mixer – Fig. 8; col. 14, lines 44-49; Fig. 5), the receiver further comprising a signal processor unit (CPSP – Fig. 5) coupled to the mixer and configured to receive the downconverted signal to detect the navigation signal and determine a pseudorange measurement based on the navigation signal (see col. 9, lines 24-26; col. 12, lines 3-16).

12. Regarding claims 14 and 19, the navigation signal is a chirp signal and the processor unit includes a chirp generator that generates a reference chirp signal, considered to be based on timing frames (slots) in the communication signal in which the chirp signal has been generated, a correlator connected to the chirp generator and configured to correlate the reference chirp signal with the downconverted wireless communication signal and output a correlation signal (see Fig. 9, col. 16, lines 31-39), where the correlation signal is used to determine a pseudorange value (see col. 15, lines 46 to col. 16 line 9).

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13. Regarding claim 15, Schuchman et al. further disclose a band-pass filter (BPF) coupled to the output of the mixer and the signal processing unit (see Fig. 5).

14. Regarding claim 25, Schuchman et al. disclose a method comprising embedding a spread spectrum navigation data in broadcast control channels of a communications system (col. 8, lines 10-12), where the navigation data may be included in multiple time slots (see Tables 1-2), where a portion of the navigation data transmitted during a first set of time slots is considered a first spread spectrum signal in a first portion of a communication signal, and a portion of the navigation data transmitted in a subsequent set of time slots is considered a second spread spectrum signal in a second portion of the communication signal.

15. Regarding claim 27, Schuchman et al. disclose that the spread spectrum signals may be chirped spread spectrum signals (see col. 3, lines 55-62).

16. Regarding claim 29, Schuchman et al. disclose a method of determining a location of a mobile unit in a communication system comprising extracting a chirp spread spectrum signal from a communication signal broadcast from a transmitter (col. 14, lines 49-56), where the chirp signal is synchronized with a frame structure (i.e. time slot scheme) of the communication signal, (see Tables 1-2), determining a pseudorange measurement based on the chirp signals (col. 9, lines 24-26; col. 12, lines 7-14), and determining a location of the mobile based on the pseudorange measurement (col. 12, lines 17-20).

17. Regarding claim 34, the position of the mobile unit is determined based on pseudorange and timing information (col. 9, lines 46-52; col. 12, lines 17-20).

18. Claims 36 and 37 are rejected under 35 U.S.C. 102(e) as being anticipated by Noerpel et al. U.S. Patent 6,233,451.

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19. Regarding claim 36, Noerpel et al. disclose a transmission signal comprising a communication signal having a plurality of frames sent in a control channel, each frame having a plurality of slots, as shown in Fig. 3, where a chirp signal is transmitted (col. 6, lines 63-64), and is considered to be synchronized with the frames.

20. Regarding claim 37, the signal is sent in a GSM system (col. 3, lines 23-27), and is thus considered a GSM signal.

***Claim Rejections - 35 USC § 103***

21. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

22. Claims 2 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Christy et al. in view of Gilhousen et al. U.S. Patent 5,280,472.

23. Regarding claims 2 and 8, Christy et al. disclose a transmitting station as disclosed above where the spread spectrum signal and the data information are transmitted using two channels (col. 8, lines 47-52).

24. Christy et al. do not disclose a diplexer coupled to the communication signal generator and the spread spectrum signal generator and outputting a composite signal including the communication signal along with spread spectrum signal.

25. Gilhousen et al. disclose a transmitter in Figure 4 including a summer 116 for summing with multiple channel outputs, and provided to diplexer 100 for transmitting a composite signal via an antenna 26 (see col. 18, lines 51-65).

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26. It would have been obvious to one of ordinary skill in the art to provide a composite signal via a diplexer to an antenna for transmitting the communication signal as taught by Gilhousen et al. in the transmitting station of Christy et al. in order to allow for communication while using only a single antenna unit, thus reducing the cost of the system.

27. Claims 3 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Christy et al. in view of Hochwald et al. U.S. Patent 6,058,105.

28. Regarding claims 3 and 9, Christy et al. disclose a transmitting station as disclosed above where the spread spectrum signal and the data information are transmitted using two channels (col. 8, lines 47-52).

29. Christy et al. do not disclose that the data is transmitted using a first antenna and the spread spectrum position determination signal is transmitted using a second antenna.

30. Hochwald et al. disclose the use of multiple antennas for transmitting data to increase information throughput (see abstract).

31. It would have been obvious to transmit each of data channels of Christy et al. using separate antennas in order to increase the information throughput as compared to single antenna systems (see Hochwald et al., col. 11, lines 14-16).

32. Claims 4, 5, 10, 11, 22 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Christy et al. in view of Schuchman et al.

33. Regarding claims 4, 19 and 22, Christy et al. disclose a transmitting station for sending a spread spectrum position determination signal as disclosed above, and also states that other spread spectrum techniques may be incorporated (col. 7, lines 7-11).



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34. Schuchman et al. disclose the use of chirp spread spectrum signals in position determination (see abstract).

35. It would have been obvious to one of ordinary skill in the art to use chirp spread spectrum signals in the system of Christy et al. as a matter of design choice, as Christy et al. state that other spread spectrum techniques may be used.

36. Regarding claims 5 and 11, Schuchman et al. disclose the transmission of the chirp spread spectrum signal over multiple frames (i.e. time slots – see Tables 1-2).

37. Regarding claim 23, Schuchman et al. disclose the transmission of the chirp spread spectrum signal over multiple frames (i.e. time slots – see Tables 1-2), where the portion in the first slot is broadly considered an up-chirp first portion, and the portion in the second slot is broadly considered a down-chirp second portion.

38. Claim 26 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ployer U.S. Patent 6,801,543 in view of Schuchman et al.

39. Regarding claim 35, Ployer discloses transmission of data within a communication system utilizing one of a plurality of transmission schemes including FDMA, transmitted in a TDM manner (col. 1, lines 12-19).

40. Ployer does not disclose embedding a first spread spectrum signal in a first TDM frame, and embedding a second spread spectrum signal in a second TDM frame.

41. Schuchman et al. disclose a method of determining a location of a mobile unit, which may be embedded in an existing cellular communication system comprising embedding a spread spectrum navigation data in broadcast control channels of a communications system (col. 8, lines 10-12), where the navigation data may be included in multiple time slots (see Tables 1-2), where

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a portion of the navigation data transmitted during a first set of time slots is considered a first spread spectrum signal in a first portion of a communication signal, and a portion of the navigation data transmitted in a subsequent set of time slots is considered a second spread spectrum signal in a second portion of the communication signal.

42. It would have been obvious to implement the method of Schuchman et al. in the communication system of Ployer in order to enable position location determination.

43. Claim 35 is rejected under 35 U.S.C. 103(a) as being unpatentable over Schuchman et al. in view of Krasner U.S. Patent 6,272,430.

44. Regarding claim 35, Schuchman et al. disclose a method of determining a location of a mobile unit in a communication system using pseudorange information as described above, but do not disclose that the pseudorange information is transmitted to a location processing center for determining the position of the mobile unit.

45. Krasner discloses the transmission of pseudorange information to a base station for final position calculation.

46. It would have been obvious to one of ordinary skill in the art to implement the teachings of Krasner of transmitting the pseudorange information to a base station for final position calculation in the system of Schuchman et al. in order to eliminate the need for the NAV processors at each of the mobile units, thus reducing circuitry in each of the mobiles.

***Allowable Subject Matter***

47. Claims 6, 12, 16, 17, 20, 24, 28 and 30-33 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

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***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to David B. Lugo whose telephone number is 571-272-3043. The examiner can normally be reached on M-F; 9:30-6.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jay Patel can be reached on 571-272-2988. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

David Lugo  
4/18/05

  
**KHAI TRAN**  
**PRIMARY EXAMINER**